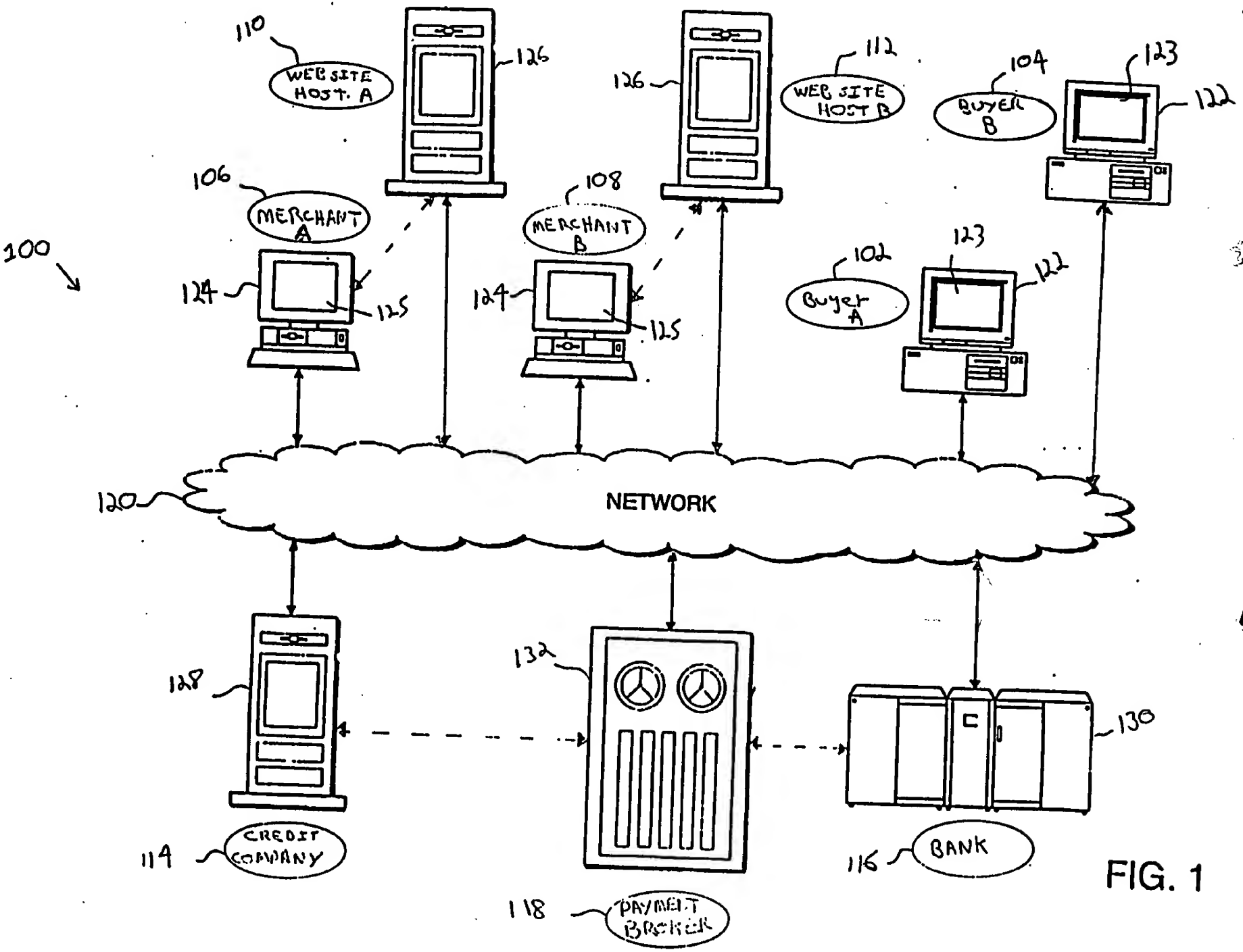

100
110
WEB SITE HOST A
126
126
112
WEB SITE HOST B
104
BUYER B
123
122
106
MERCHANT A
108
MERCHANT B
124
125
124
125
102
BUYER A
123
122
120
NETWORK
128
132
130
114
CREDIT COMPANY
116
BANK
118
PAYMENT BROKER

FIG. 1

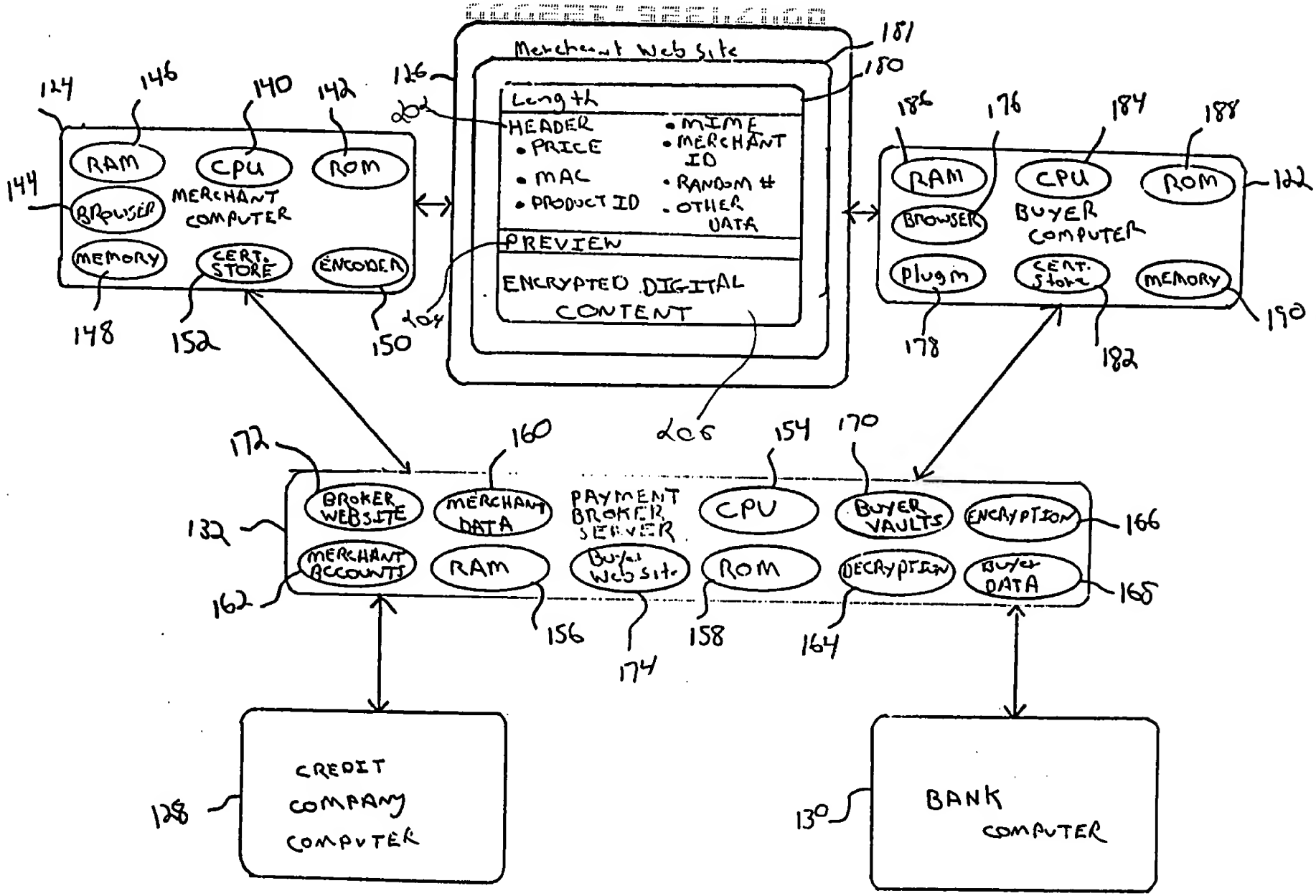

Merchant Web Site
181
180
Length
HEADER
• PRICE
• MAC
• PRODUCT ID
• MIME
• MERCHANT ID
• RANDOM #
• OTHER DATA
PREVIEW
ENCRYPTED DIGITAL CONTENT
126
202
204
206
124
146
140
142
144
RAM
CPU
ROM
BROWSER
MERCHANT COMPUTER
MEMORY
CERT. STORE
ENCODER
148
152
150
182
176
184
188
RAM
CPU
ROM
BROWSER
BUYER COMPUTER
PLUGIN
CERT. STORE
MEMORY
122
178
182
190
172
160
154
170
BROKER WEBSITE
MERCHANT DATA
PAYMENT BROKER SERVER
CPU
BUYER VAULTS
ENCRYPTION
132
MERCHANT ACCOUNTS
RAM
BUYER WEBSITE
ROM
DECRYPTION
BUYER DATA
166
165
162
156
174
158
164
CREDIT COMPANY COMPUTER
128
BANK COMPUTER
130

FIG. 2

FIG. 3

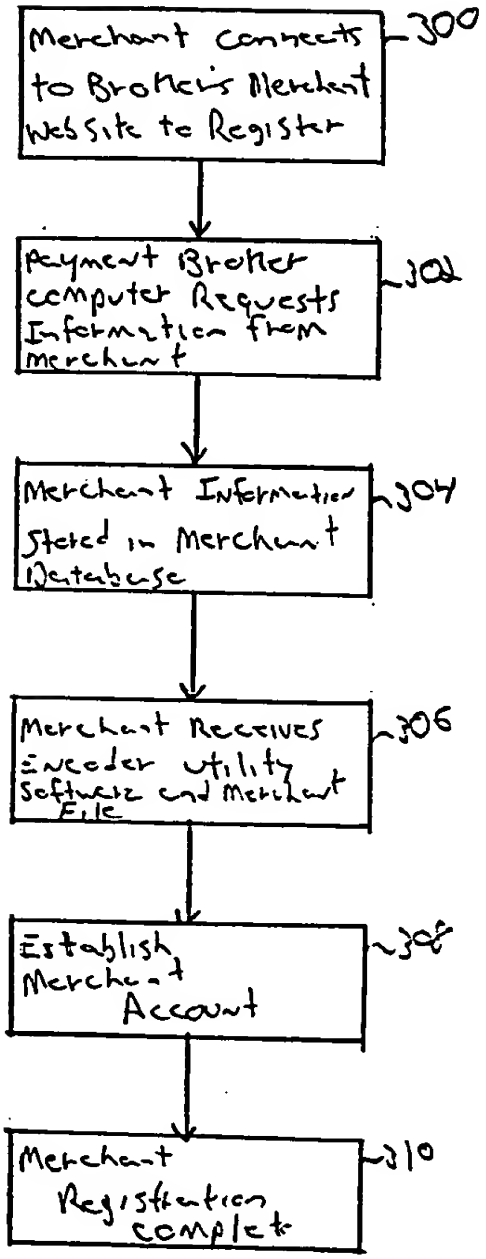

Merchant connects to Brother's Merchant Web Site to Register
300
Payment Brother computer Requests Information from merchant
302
Merchant Information Stored in Merchant Database
304
Merchant Receives Encoder utility Software and Merchant File
306
Establish Merchant Account
308
Merchant Registration complete
310

FIG. 4

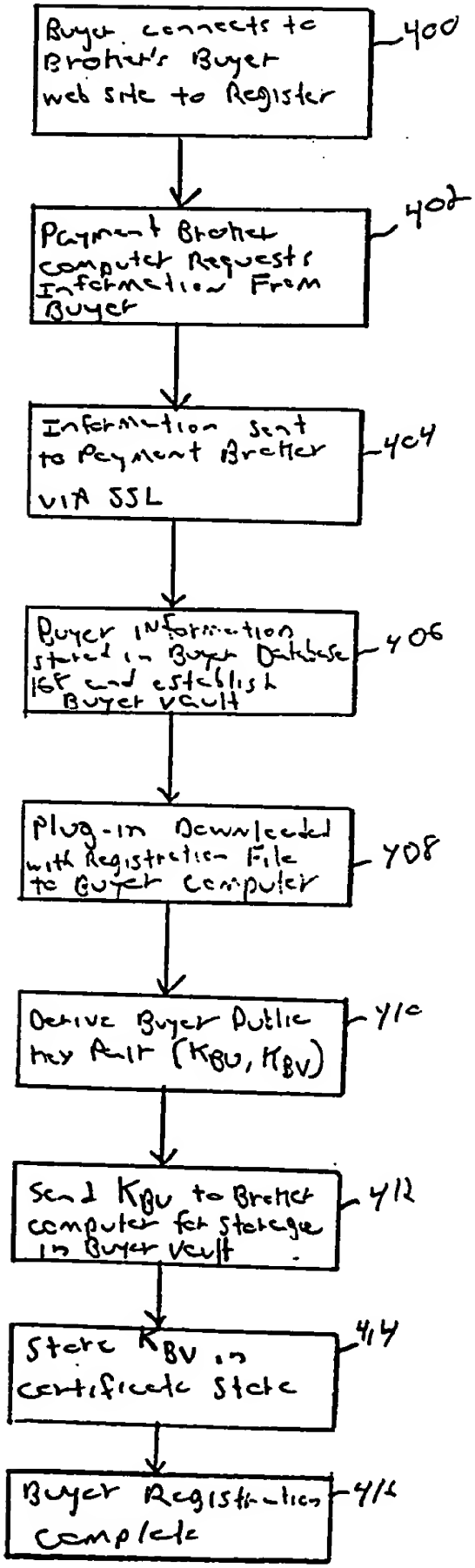

Buyer connects to Brother's Buyer web site to Register
400
Payment Brother computer Requests Information From Buyer
402
Information Sent to Payment Brother VIA SSL
404
Buyer Information stored in Buyer Database IGF and establish Buyer Vault
406
Plug-in downloaded with Registration File to Buyer computer
408
Derive Buyer Public key Pair (K_{BU}, K_{BV})
410
Send K_{BU} to Brother computer for storage in Buyer Vault
412
Store K_{BV} in certificate State
414
Buyer Registration complete
416

FIG 5

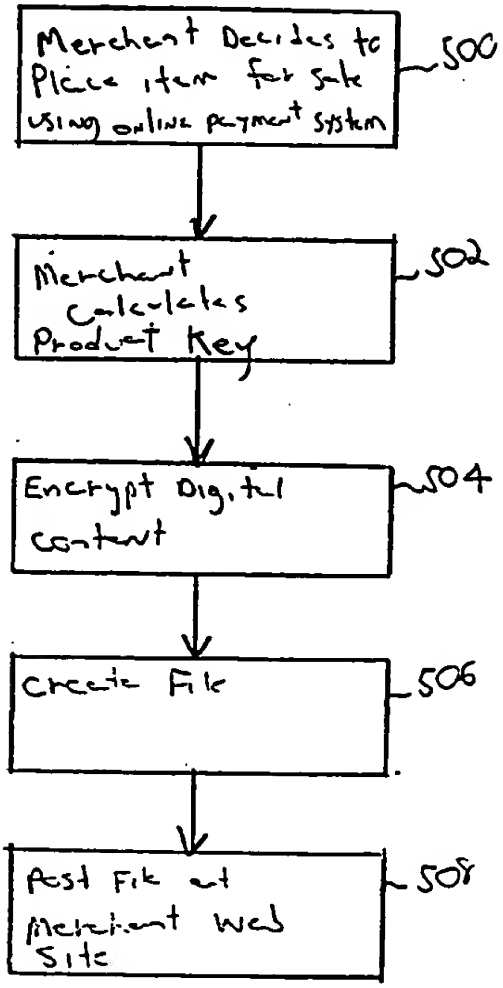
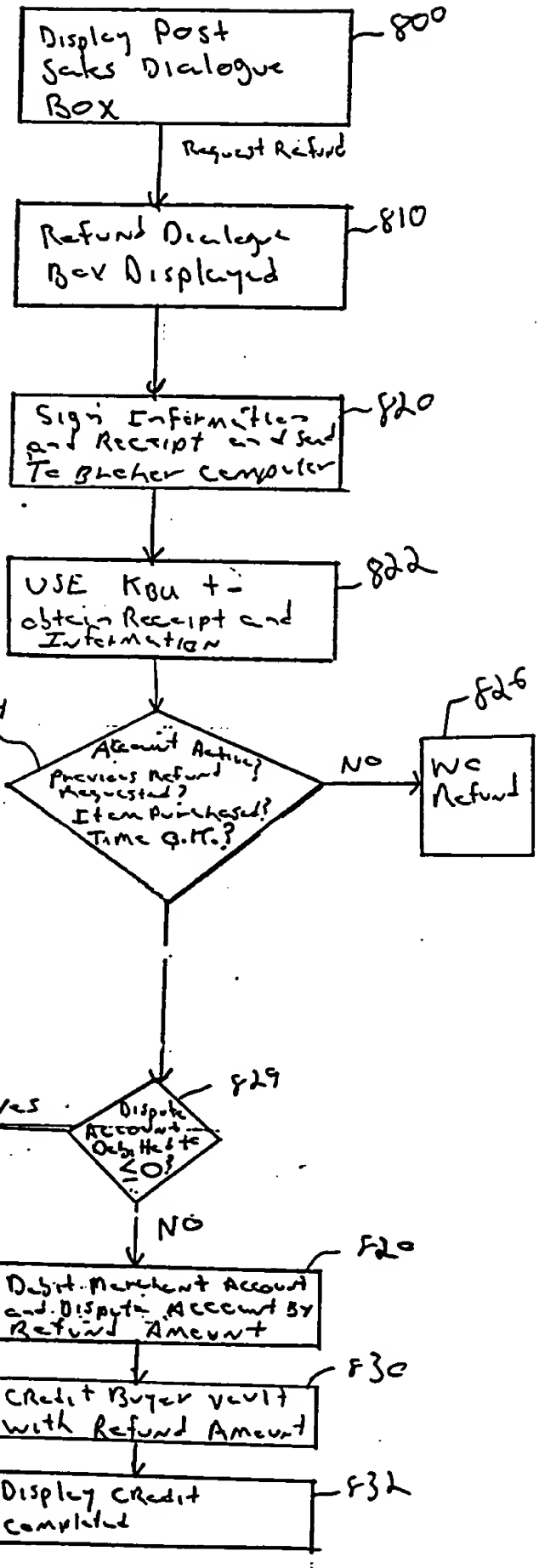

Merchant Decides to Place item for sale using online payment system
500
Merchant Calculates Product Key
502
Encrypt Digital content
504
Create File
506
Post File at Merchant Web Site
508

FIG 8


Display Post Sales Dialogue Box
800
Request Refund
Refund Dialogue Box Displayed
810
Sign Information and Receipt and Send To Broker Computer
820
USE KBU to obtain Receipt and Information
822
Account Active? Previous Refund Requested? Item Purchased? Time O.K.?
824
NO
WC Refund
826
YES
Dispute Account Debit Held to ≥0?
829
NO
Debit Merchant Account and Dispute Account By Refund Amount
F20
Credit Buyer Vault with Refund Amount
F30
Display Credit completed
F32
Set Buyer Vault to Executive STATUS
F37
Credit card Accept Refund?
F35
Refund Remaining Buyer Vault Funds to Credit Card
F36
Message for Manual Refund
F38
Message to Buyer of Executive Vault and Refund
F40

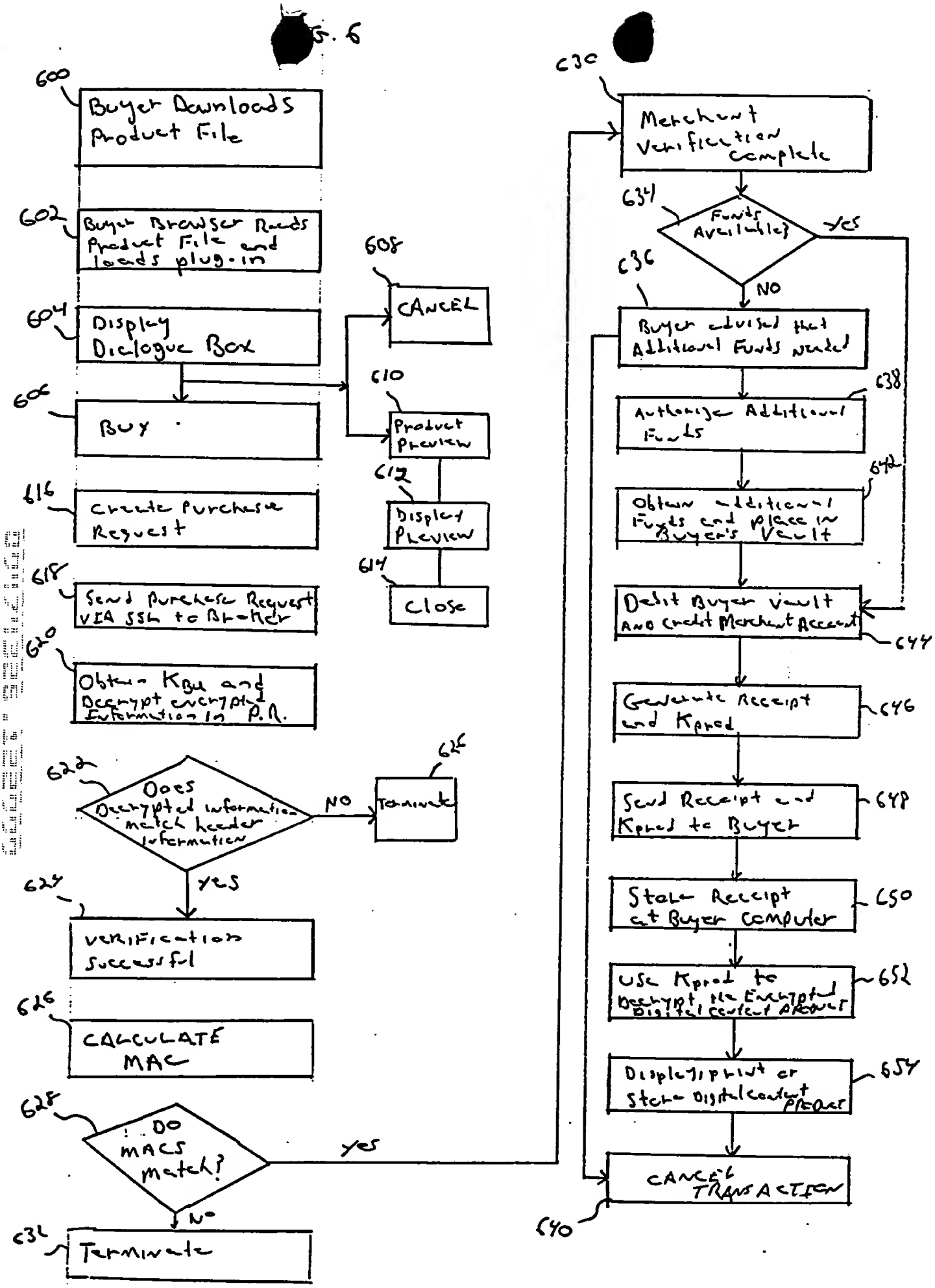
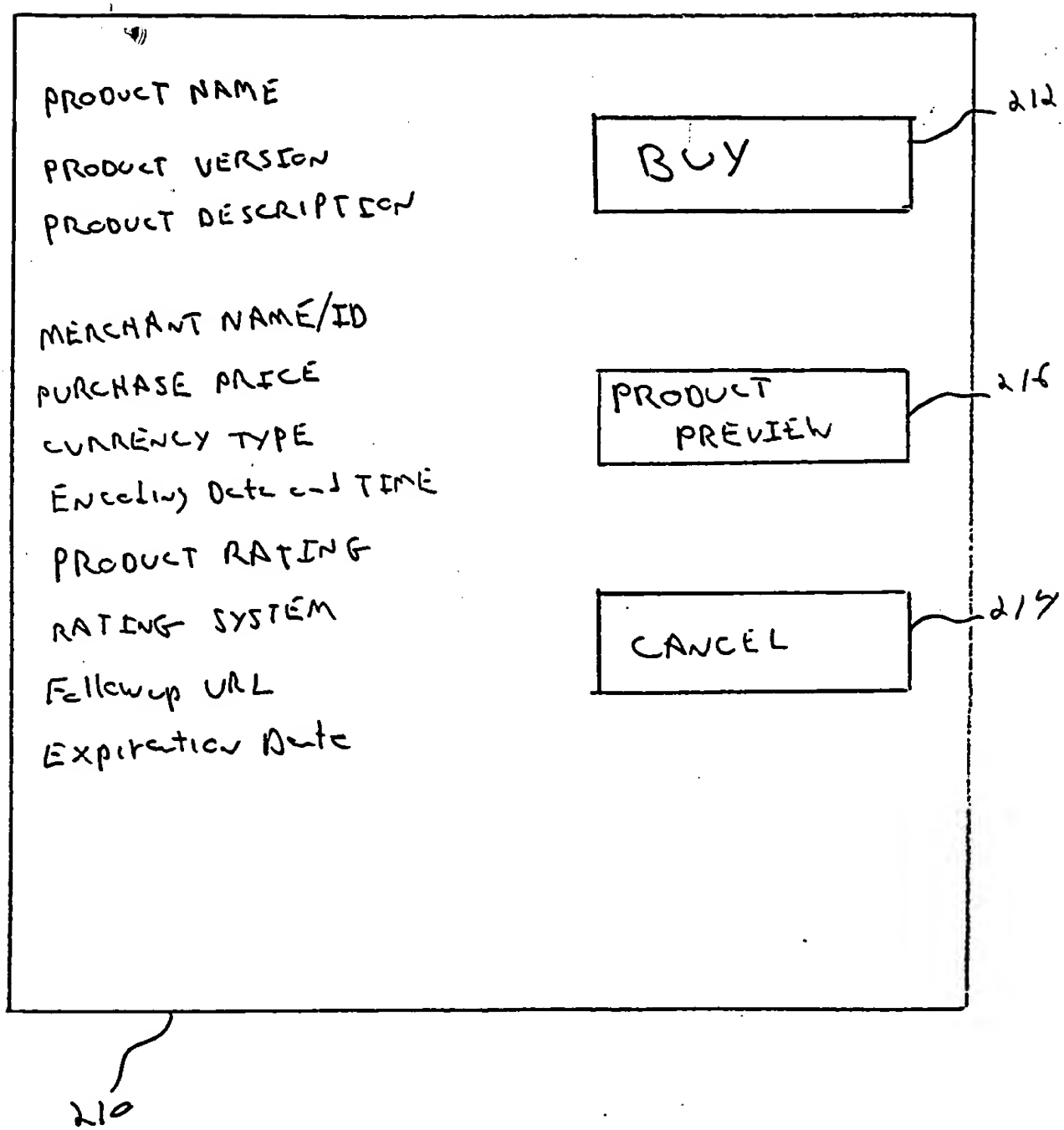


FIG. 6
600
Buyer Downloads Product File
602
Buyer Browser Reads Product File and loads plug-in
604
Display Dialogue Box
606
BUY
608
CANCEL
610
Product Preview
612
Display Preview
614
Close
616
Create Purchase Request
618
Send Purchase Request VIA SSL to Broker
620
Obtain KBR and Decrypt encrypted Information in P.R.
622
Does Decrypted information match header information
NO
624
YES
625
Terminate
VERIFICATION SUCCESSFUL
626
CALCULATE MAC
628
DO MACS match?
YES
NO
632
Terminate
630
Merchant Verification complete
634
Funds Available
YES
NO
636
Buyer advised that Additional Funds needed
638
Authorize Additional Funds
642
Obtain additional Funds and place in Buyer's Vault
644
Debit Buyer Vault AND Credit Merchant Account
646
Generate Receipt and Kprod
648
Send Receipt and Kprod to Buyer
650
Store Receipt at Buyer Computer
652
Use Kprod to Decrypt the Encrypted Digital content Product
654
Display/print or Store Digital content Product
CANCEL TRANSACTION
640

FIG. 7


PRODUCT NAME
PRODUCT VERSION
PRODUCT DESCRIPTION
MERCHANT NAME/ID
PURCHASE PRICE
CURRENCY TYPE
Encoding Date and TIME
PRODUCT RATING
RATING SYSTEM
Followup URL
Expiration Date
BUY
212
PRODUCT PREVIEW
216
CANCEL
214
210